ROOFING STUDY GUIDE
ARCHITECTURAL SHEET METAL

PRACTICE TEST ONE

1. It is recommended that base fleshings be applied over a cant and be extended up the wall a minimum of _____ .

A. 6 inches
B. 8 inches
C. 10 inches
D. 12 inches

2. A minimum ratio of the depth to width of guttering should be _____ .

A. 2 to 3
B. 3 to 4
C. 4 to 5
D. 4 to 6

3. Galvanized steel with a coefficient of thermal expansion of 0.0000067 will increase in length _____inch(es) due to an increase of 100° F. (Assume a 10' length).

A. 1/64
B. 5/16
C. 5/64
D. 9/16

4. Termite shield joints should be lapped _____inch(es) and soldered or should be flat locked.

A. 1/2
B. 3/4
C. 1
D. 2

5. A minimum height of _____ inches is recommended for a water diverter.

A. 4
B. 5
C. 6
D. 7

6. Horizontal cleats for a fascia should be continuous in lengths not to exceed 12 feet with _____ inch clearance between ends.

A. 1/86.
B. 1/4
C. 3/8
D. 1/2

7. Downspouts of less than _____ square inches cross section should not be used except for small areas such as porches and canopies.

A. 4
B. 5
C. 6
D. 7

8. Flashing used at roof penetrations should be a minimum of _____ gauge galvanized steel.

A. 16
B. 24
C. 26
D. 28

9. Given: 24 ounce copper downspout; 12-inch width of gutter bottom; 90° side angles of the gutter. The maximum distance between the expansion joint and downspout is _____ feet for built-in gutter.

A. 23
B. 25
C. 28
D. 32

10. Flashing receivers should be of 16 oz. copper, 26 gage galvanized steel, or _____ gage stainless steel.

A. 16
B. 22
C. 26
D. 28

11. No. 23 B & S gage copper has an approximate thickness of _____ .

A. .0243 mm
B. .0094 mm
C. .0202 mm
D. .0216 mm

12. The recommended gutter strap is _____ for aluminum straps and a 22" gutter girth.

A. 1/8" by 1"
B. 3/16" by 1"
C. 1/4" by 1"
D. 1/4" by 2"

13. A gutter outlet tube should be a minimum length of _ inches after a _____ inch flange has been turned down at the top.

A. 4 — 3/8
B. 4 — 9/16
C. 5 — 1/4
D. 5 — 3/8

14. What minimum gage aluminum may be used as counter flashing?

A. .32
B. .032
C. .51
D. .75

ANSWERS TO PRACTICE TEST ONE

1. C	4. B	7. D	10. D	13. A
2. B	5. A	8. B	11. D	14. B
3. C	6. B	9. B	12. D	

PRACTICE TEST TWO

1. In sizing downspouts, which of the following is not a consideration?

A. Gutter outlet capacity should suit downspout capacity.
B. The conductor heads should be spaced every 40 feet to prevent vacuum.
C. The conductor heads should be less than 7.00 sq. in.
D. The size of the downspout should be constant.

2. According to the *Architectural Sheet Metal Manual,* pans are installed with cleats nailed on_____.

A. 6 inch centers
B. 8 inch centers
C. 10 inch centers
D. 12 inch centers

3. An outlet tube should be a minimum of _____ long after a 3/8" flange has been turned at the top.

A. 2"
B. 3"
C. 3.5"
D. 4"

4. Saddle flashing must be flanged_____inches up the wall of the chimney and inches onto the roof

A. 2 — 4
B. 4 — 3
C. 4 — 4
D. 6 — 6

5. The maximum length of gutter allowed is _____ unless the system is designed to accommodate extra length and the need for special supports.

A. 40 feet between ends or expansion joints
B. 50 feet between ends or expansion joints
C. No maximum length has been established.
D. All systems must be custom designed.

6. The recommended minimum gage for galvanized steel counter flashing is _____ when installed at concrete walls where reglets are used.

A. 22
B. 24
C. 26
D. 28

7. Which of the following is a pan width on a standing seam roof made of 24 gage galvanized steel with a seam height of 1-1/2 inches?

A. 16-3/4"
B. 18-1/4"
C. 20-3/4"
D. 21-3/4"

8. According to the *Architectural Sheet Metal Manual,* when using a pitch pan to flash a penetration, the flange will extend onto the roof _____ inches and the sides should extend up from the roof at a minimum of inches.

A. 6 — 3
B. 3 — 6
C. 4 — 4
D. 6 — 4

9. The recommended back width of a splash pan is _____ .

A. 4 inches greater than the downspout.
B. The same as the back height.
C. 4 inches.
D. 18 inches.

10. Flashing to structural steel at roof penetrations should be a minimum of _____gage galvanized steel.

A. 16
B. 24
C. 26
D. 28

11. According to the *Architectural Sheet Metal Manual,* galvanized steel used to fabricate a formed gravel stop having an exposed face of 4 inches should be of _____ gage steel.

A. 26
B. 24
C. 22
D. 20

12. The recommended minimum thickness of aluminum required to fabricate a rectangular design gutter having a girth of 24 inches is _____ inch aluminum.

A. 0.025
B. 0.032
C. 0.051
D. 0.064

13. A copper gutter that is girthed at 18" should have brackets or straps a minimum of _____ inches.

A. 1/8 by 1
B. 1/4 by 1
C. 1/4 by 1-1/2
D. 1/4 by 2

14. The *Architectural Sheet Metal Manual* recommends that when using copper for counter flashings, the minimum gauge should be _____ounces.

A. 12
B. 14
C. 16
D. 20

15. According to the *Architectural Sheet Metal Manual,* galvanized steel used to fabricate a gutter with a girth of 31 to 35 inches should be of _____ gage metal.

A. 24
B. 22
C. 20
D. 18

ANSWERS TO PRACTICE TEST TWO

1. C	4. C	7. D	10. B	13. A
2. D	5. B	8. C	11. A	14. C
3. D	6. C	9. C	12. C	15. D

PRACTICE TEST THREE

1. According to the Architectural Sheet Metal Manual, a copper gutter that is girthed between 20 and 24 inches should have brackets or straps _____ inch(es) in size.

A. 1/8 by 1
B. 1/4 by 1
C. 1/8 by 1-1/2
D. 1/4 by 1-1/2

2. A plain round downspout having a nominal size of 4 inches has an area of _____ sq. in.

A. 5.94
B. 7.07
C. 11.04
D. 12.57

3. Standing seam metal roof pans should be installed with cleats nailed _____inches on center.

A. 6
B. 12
C. 18
D. 24

4. The recommended minimum thickness aluminum required to fabricate a rectangular design gutter having a girth between 16 and 20 inches is _____ inches.

A. 0.019
B. 0.025
C. 0.032
D. 0.040

5. According to the *Architectural Sheet Metal Manual,* a continuous cleat should be used at the drip edge when a gravel stop fascia exceeds _____ inches.

A. 4
B. 5
C. 6
D. 7

6. According to the *Architectural Sheet Metal Manual,* galvanized steel used to fabricate a metal coping having a top width of 15 inches should be a minimum of _____gage metal.

A. 28
B. 26
C. 24
D. 22

7. According to the *Architectural Sheet Metal Manual,* galvanized steel used to fabricate a formed gravel stop having an exposed face of 8 inches should be _____ gage metal if a lap joint is to be used.

A. 16
B. 14
C. 20
D. 22

8. Standing seam metal roof pans should be installed with cleats nailed _____ inches on center.

A. 6
B. 12
C. 18
D. 24

9. 0.020 aluminum weighs approximately _____ pounds p.s.f.

A. .28
B. .36
C. .54
D. .75

10. According to the Architectural Sheet Metal Manual, galvanized steel used to fabricate a gutter with a girth of over 35 inches should be of _____ gage metal.

A. 24
B. 22
C. 20
D. 16

11. A round downspout with an inlet would have an effective opening of _____square inches if the nominal size is 3 inches.

A. 5.94
B. 9.42
C. 11.04
D. 12.57

12. According to the Architectural Sheet Metal Manual, to determine the design area of a roof for a roof drainage system with a pitch of 6 to 8 inches per foot, multiply the plan area by the factor _____.

A. 1.00
B. 1.05
C. 1.10
D. 1.20

13. According to the Architectural Sheet Metal Manual, a continuous cleat is not required to be used at the drip edge when a gravel stop fascia is less than _____ inches.

A. 4
B. 5
C. 6
D. 7

14. According to the Architectural Sheet Metal Manual, downspouts should be selected to drain a maximum of _____feet of gutter.

A. 20
B. 30
C. 40
D. 50

15. According to the Architectural Sheet Metal Manual, a rectangular gutter with a girth of 24" and fabricated out of stainless steel requires steel with a minimum gage of _____ .

A. 25
B. 24
C. 22
D. 20

ANSWERS TO PRACTICE TEST THREE

1. D	4. D	7. C	10. D	13. B
2. D	5. B	8. B	11. A	14. D
3. B	6. C	9. A	12. C	15. B

EXPLANATIONS OF ANSWERS

PRACTICE TEST ONE

1. Ans C. (ASMM) TOC Ch 4 Flashing. Typ = Minimum Base & Counter 4.8. Sub = Flashing Index - Nothing. Top = over cant Ans: Counter Flashing Systems General.
2. Ans B. (ASMM) TOC Ch 1 Drainage. Typ = Ratio Rectangular Gutter Design. Sub = Gutter. Ans: on pg 1.10. Top = Depth to height
3. Ans C. (ASMM) TOC Appendix A, Table A-1 Galvanized. Typ =Expansion Bldg Material 10 Sub = Expansion pg Pg A.6, Table A-8. Not equation at bottom. Calculation: 0.0000067 x 120" x 100° = 0.08". 0.08" x 64 = 5.1 = 5/64".
4. Ans B. Nat = (ASMM) Sub = Termite Shield Top = Lapping TOC: Chapter 4, Flashing. Find Fog 4-24, Termite Shields, Pg 4.49.
5. Ans .A . Nat = Draining. ASMM) Typ = minimum. Sub = Water diverter.
TOC: Chapter 1, Rof Drainage. Find Fig 1-17, Water Diverter, Pg 1.55.
6. Ans B. (ASMM) Pg 2.2. See Item 5. Cleats.
7. Ans D. (ASSM) Ind: Downspout, size, Pg 1.1. Sub = Downspouts. Top = minimum size
See Item a. under Downspout Sizing. 1.
8. Ans B. (ASMM) Pg 4.30. 2.
9. Ans B. (ASMM) InD: Gutter, built-in, Pg 1.16. 3. See Table 1-6, Pg 1-18, Max distance between expansion joint and downspout. Both sides are 4. A90 & A90. Use Column C (footnote").
10. Ans D. (ASMM) Ind: Flashing, Through-wall, Pg 4.8, Installation, last paragraph. 6.
11. Ans D. (ASMM) Appendix A, Pg A.1. See Table 7. A-2 for copper.
12. Ans D. (ASMM) Pg 1.340 . Table 1-8.
13. Ans A. (ASMM) Ind: Gutter, accessories, Pg 1.58. 10.
14. Ans B. (ASMM) Ind: Flashing, Counter, Pg 11. 4.12, Installation.

PRACTICE TEST TWO

1. Ans C. (ASMM) 1.1
2. Ans D. (ASMM) Standing seam roofs, Pg 6.14.
3. Ans D. (ASMM) Gutter accessories, Pg 1.58.
4. Ans C. (ASMM) Chimney flashing, Pg 4.36.
5. Ans B. (ASMM) Allowances for gutter expansion, Pg 1.20 See Fig 1-5A on next page.

6. Ans C. (ASMM) Ind: Flashing, Counter., Pg 4.8.
7. Ans D. (ASMM) Ind: Roof, standing seam, Pg 6.14. See Table 6.1.
8. Ans C. (ASMM) Pg 4.34. Ind: Flashing, Equipment support flashing.
9. Ans C. (ASMM) Pg 1.82, Splash Pan. Ind: Downspouts.
10.Ans B. (ASMM) PG 4.32. Ind: Flashing, roof.
11. Ans A. (ASMM) Pg 2.4. Ind: Gravel stops. Table 2-1, Pg 2.4, Gravel- Stop design.
12. Ans C. (ASMM) Pg 1.11, TOC: Table 1-5, Recommended Minimum Gages for Gutters.
13. Ans A. {ASMM) Pg 1.34, Table 1-8, Gutter Brackets or straps.
14. Ans C. (ASMM) Pg 4.8. Ind: Flashing, counter.
15. Ans D. (ASMM) Pg 1.11, TOC: Table 1-5, Recommended Minimum Gages for Gutters.

PRACTICE TEST THREE

1. Ans D. (ASMM) Pg 1.30 Table 1-8
2. Ans D. (ASMM) Pg 1.15 Table 1-6
3. Ans B. (ASMM) Pg 6.11
4. Ans D. (ASMM) Pg 1.9 Table 1-5
5. Ans B. (ASMM) Pg 2.1, Item 4-A
6. Ans C. (ASMM) Pg 3.3 Table 3.1
7. Ans C. (ASMM) Pg 3.3 Table 3.1
8. Ans B. (ASMM) Pg 6-11
9. Ans A. (ASMM) Pg 9.4 Alum. Table
10. Ans D. (ASMM) Pg. 1.9
11. Ans A. (ASMM) Pg 1.4 Table 1-3
12. Ans C. (ASMM) Pg 1.1 Table 1-1
13. Ans B. (ASMM) Pg 2.1
14. Ans D. (ASMM) Pg 1.4 Sect 7-A
15. Ans B. (ASMM) Pg 1-9 Table 1-5